

IN THE CLAIMS

Please cancel original claims 1-7 and new claims 8-18 submitted in the previous response, and add new claims 19-29 as follows:

1-18 (Cancelled)

19. (New) A ferrohydrostatic separation method comprising the steps of:

- providing a ferrofluid;
- controlling the density of the ferrofluid to a substantially constant value by means of a vertically orientated magnetic field generated by a C dipole, an open dipole (O dipole), or split pair electromagnet or permanent magnet;
- introducing materials of different densities into the ferrofluid; and
- separately recovering materials which sink and float in the ferrofluid.

20. (New) The method according to claim 19, wherein the vertically orientated magnetic field is generated by a C dipole and a required vertically orientated magnetic field pattern is achieved by appropriate design of the magnetizing coils on upper and lower legs of the C-dipole.

21. (New) The method according to claim 19, wherein the vertically orientated magnetic field is generated by a C dipole and a required vertically orientated magnetic field pattern is achieved by controlling the relative polarity of electrical current flowing through the magnetizing coils on upper and lower legs of the C-dipole.

22. (New) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a C dipole and a required vertically orientated magnetic field pattern is achieved by appropriate shaping of the C-dipole tips.

23. (New) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a split pair electromagnet and a required vertically orientated magnetic field pattern is achieved by appropriate design of the magnetizing coils on upper and lower members of the split pair.

24. (New) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a split pair electromagnet and a required vertically orientated magnetic field pattern is achieved by controlling the relative polarity of electrical current flowing through the magnetizing coils on upper and lower members of the split pair.

25. (New) The method according to claim 19 wherein the vertically orientated magnetic field is generated by a split pair electromagnet and a required vertically orientated magnetic field pattern is achieved by appropriate shaping of the tips of upper and lower members of the split pair.

26. (New) The method according to claim 19 wherein the vertically orientated magnetic field is generated by an O dipole electromagnet and a required vertically orientated magnetic field pattern is achieved by appropriate shaping of the steel core of the O dipole electromagnet.

27. (New) The method according to claim 19 wherein the vertically orientated magnetic field is generated by an O dipole electromagnet and a required vertically orientated magnetic field pattern is achieved by appropriate design of the magnetizing coil.

28. (New) The method according to claim 19 wherein a required vertically orientated magnetic field pattern is achieved with the provision of a substantially constant magnetic field gradient.

29. (New) A ferrohydrostatic separation apparatus for separating materials having different densities, the apparatus including a separation chamber for accommodating a

ferrofluid into which the materials are introduced, and a C dipole, O dipole or split pair magnet adjacent the chamber for generating a magnetic field to control the apparent density of the ferrofluid to a substantially constant value.